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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,380	03/03/2005	Eiji Yamamoto	Q86648	3834

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EXAMINER	
BAUER, SCOTT ALLEN	

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/526,380	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Scott Bauer	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 2/1/2006. These drawings are accepted.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1 & 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuji Electric Co., Ltd. (JP 2000-316285) in view of Kobayashi (US 5512782) and further in view of Miki et al. (US 5055990).

10. With regard to Claim 1, Fuji Electric Co., in Figure 27, teaches a snubber circuit with twelve snubber diodes (DR1 & DR2) connected to six diode terminals (R, S, T, U, V & W).

Fuji Electric Co. Ltd. does not teach providing a package for enclosing the snubber diodes and capacitors.

However, Kobayashi in, Figure 2, teaches a snubber module for suppressing a surge voltage (column 2 lines 35 & 36), comprising six snubber

diodes (7) and snubber capacitors (11). Kobayashi, in Figure 1a, further teaches a package (1), which encloses the snubber diodes and capacitors, wherein two external capacitor terminals (2 & 3) and external diode terminals (4) are exposed from the package. Kobayashi also teaches that the external capacitor terminals are connected to the two leads of the capacitor (P & N) and that each of the external diode connections are connected to a connecting portion of respective two snubber diodes (U, V & W).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Fuji Electric Co. with Kobayashi by encasing the circuit of Fuji Electric Co., in the package as taught by Kobayashi and providing six external diode terminals for the six sets of diode pairs taught by Fuji Electric Co. for the purpose of incorporating the circuit taught by Fuji Electric Co. into a package that can be easily installed and replaced.

11. Kobayashi further does not teach that the package (1) is made of resin. Miki et al. teaches a snubber circuit with external terminals, and that the circuit is hermetically sealed in a synthetic resin mold (column 4 lines 23-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Fuji Electric Co. in view of Kobayashi with Miki et al. by using a resin mold for package (1) taught by Kobayashi, for the purpose of creating a cheap, and durable insulating cover for protecting various circuit elements.

12. With regard to Claim 2, Fuji Electric Co. in view of Kobayashi and further in view of Miki et al. teaches the snubber module according to Claim 1.

Fuji Electric Co., in Figure 27, further teaches a snubber circuit, configured by six sets of serial diodes (DB1 & DB2) each of which is configured by two snubber diodes, an anode terminal of one of the snubber diodes being connected to a cathode terminal of another one of the snubber diodes and that the connecting portion (R, S, T, U, V, W) is attached to the anode and cathode terminals. Fuji Electric Co. also teaches a snubber capacitor with one terminal connected commonly to anode terminals of the serial diodes on a side that is not connected to said six diode external terminals, and another terminal is connected commonly to cathode terminals of the serial diodes on a side that is not connected to said six diode external terminals.

13. Claims 3 & 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over of Fuji Electric Co., Ltd. (JP 2000-316285) in view of Kobayashi (5512782) and further in view of Miki et al. (US 5055990) and Hitachi (JP 8-251908).

14. With regard to Claim 3, Fuji Electric Co., Ltd. in view of Kobayashi and further in view of Miki et al. teaches the snubber module according to Claim 1.

Fuji Electric Co., Ltd. in view of Kobayashi. and further in view of Miki et al., does not teach that the external terminals of the snubber module are configured to be spaced at the same intervals as input and output terminals of a

semiconductor switch module which can bi-directionally supply a power between three terminals.

Hitachi, in Figure 5, teaches a snubber module (603) with external terminals configured to mate with the external terminals of a semiconductor switch module (83) containing IGBT's.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Fuji Electric Co., Ltd. in view of Kobayashi and further in view of Miki et al. with Hitachi by incorporating the three snubber modules taught by Hitachi into one single snubber module that will mate with the switch for the purpose of saving cost and space and to reduce the time required to install the modules.

15. With regard to Claim 4, Kobayashi in view of Fuji Electric Co., Ltd. and further in view of Miki et al. further discloses a power conversion apparatus, configured by a semiconductor switching module comprising eighteen semiconductor switching devices (S_nP & S_nN) having a self arc extinguishing ability and a reverse withstand characteristic in which two of the eighteen semiconductor switching devices are connected in anti-parallel to each other to constitute one bidirectional switch (S_O), thereby constituting nine bidirectional switches (S_1-S_9) and three bidirectional switch groups (10H, 20H, & 30H) each configured by three bidirectional switches are connected to input terminals an output terminals (R, S, T, U, V & W), the snubber module further comprising twelve snubber diodes (DB1 & DB2) and a snubber capacitor (11) and a resin

mold in which said snubber diodes and said snubber capacitor are enclosed, wherein two capacitor external terminals (2 & 3) and six diode external terminals (R, S, T, U, V & W), are exposed from said resin mold, wherein the two capacitor external terminals are connected to two terminals of said snubber capacitor respectively, and each of said six diode external terminals is connected to a connecting portion of respective two of said twelve snubber diodes.
Hitachi in Figure 4, further teaches that the snubber module external diode terminals (W, N & P) are connected to the input and output terminals of the semiconductor switch module (83).

Response to Arguments

2. Applicant's arguments filed 2/1/2006 have been fully considered but they are not persuasive.

3. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

4. Applicant argues in lines 4 & 5 of page 8 of the amendment, that Fuji Electric Co. does not teach providing a package for enclosing the twelve snubber diodes and capacitor. However, such a circuit would require some sort of

packaging to protect the circuit from the environment in which the circuit was placed.

5. In lines 8-11 of page 8, Applicant argues that Kobayashi discloses only six snubber diodes and capacitors enclosed in the package and that the packaging is not a resin mold. In the prior and present office actions, the two references were combined to show a case of obviousness. The Kobayashi reference was used to teach that the circuit components of Fuji Electric Co. could be enclosed within a packaging and that the terminals could be external from the packaging. As the circuit of Fuji Electric Company contains six pairs of diodes as opposed to the three sets of diodes as taught by Kobayashi, the combined invention would include three extra diode external terminals.

6. Finally, Miki et al. teaches that snubber circuits can be hermetically sealed in a resin mold. Applicant asserts in lines 12 & 13 of page 8, that the capacitor external terminals and diode external terminals are not exposed from the resin mold. However, Miki et al, in figures 11 & 12 teaches that the terminals of a diode (7) have two external terminals (64 & 65) which extend from the resin mold. In the circuit taught by Fuji Electric Co. in view of Kobayashi and further in view of Miki et al., the entire package of Kobayashi are replaced with the resin mold taught by Miki et al. and that the terminals of the device of Fuji Electric Co. in view of Kobayashi would extend from the molding in the same way that the terminals (64 & 65) taught by Miki et al. extend from the resin mold (60).

7. Further, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., miniaturization of the power conversion apparatus) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

8. In the first paragraph of page 9 Applicant argues that a skilled artisan would not have found it obvious to modify the structure of Kobayashi based on the structure of Miki et al. and that placing the components in a resin mold teaches away from Kobayashi, but provides no argument to why this would be true.

9. Lastly, Applicant states that placing the circuit of Fuji Electric Co. in a resin mold would cause the device to not function according to its intended design and purpose but provides no reasoning as to why this would be true.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bauer whose telephone number is 571-272-5986. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAB
04/11/2006

4/14/06

PHUONG T. VU
PRIMARY EXAMINER